(f) a means for detecting changes in impedance at each microelectrode in the presence or absence of a target molecule, wherein the means for producing the electrical impedance is in electrical contact with each microelectrode and the means for detecting changes in said impedance, [and]

(g) at least one reference electrode,

(h) an electrolyte solution comprising 0.1M $LiClO_4$ in contact with the plurality of microelectrodes, plurality of conjugated polymer films, the reference electrode and the counter-electrode, wherein molecular interactions comprising formation of a duplex between the immobilized oligonucleotide probe and the target nucleic acid molecule are detected by detecting changes in the electrical impedance in the presence and absence of the target molecule.

3. (Amended) An apparatus for electrical detection of molecular interactions between an immobilized oligonucleotide probe and a target nucleic acid molecule, comprising:

(a) a supporting substrate comprising ceramic, glass, silicon, fabric, or plastic,

(b) a plurality of microelectrodes in contact with the supporting substrate,

(c) a plurality of polymer gel pads in contact with the microelectrodes and to which oligonucleotide probes are immobilized,

(d) at least one counter-electrode in contact with the supporting substrate,

(e) a means for producing electrical impedance at each microelectrode,

(f) a means for detecting changes in impedance at each microelectrode in the presence or absence of a target molecule, wherein the means for producing the electrical impedance is in electrical contact with each microelectrode and the means for detecting changes in said impedance, [and]

(g) at least one reference electrode,

(h) an electrolyte solution comprising 0.1M $LiClO_4$ in contact with the plurality of microelectrodes, polyacrylamide gel pads, the reference electrode and the counter-electrode, wherein molecular interactions comprising formation of a duplex between the immobilized oligonucleotide probe and the target nucleic acid molecule are detected by detecting changes in the electrical impedance in the presence and absence of the target molecule.

Please cancel claims 1, 4 and 22-27 without prejudice.

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